EPA Review of 2012 and 2013 Wetland Determination Data Forms
(Data Forms are under Application Materials Appendix B in BLM DEIS)

Overall Comments: The percent of soil matrix color and primary and secondary hydrological indicator fields (other than depth of water) were not filled out for most forms in the 2012 delineation.

Several sample point numbers are missing on associated classification maps or it could be that all maps were not included in the DEIS. Sampling number system for 2012 data goes from 33 to 100. Are there sample points/data sheets from 34-99?

Many of the sample points surveyed in this delineation note permafrost layer, however soil was determined not to be hydric and Indicator D3 Shallow Aquitard was not identified as a Secondary hydrology indicator on most data forms even though the permafrost layer (aquitard) was present within 24 inches of the soil surface.

There is concern that conclusions on hydric soils were not accurate in several sample points, especially in the 2012 data. Much of the study area is underlain by continuous permafrost. The Alaska Regional Supplement states that in most soils affected by permafrost, the permafrost forms a restrictive layer that will perch water. In many such soils, the active layer above the permafrost is saturated enough during the growing season so that reduced conditions occur and that redoximorphic features and hydric soils are often present. The supplement also states that if natural activity such as wildfire occurs, disturbing the surface organic layer, the temperature of a permafrost-affected soil may increase and could result in enough thawing that the restrictive permafrost layer is either lowered or removed. The supplement states that hydric soil indicators may be present even though wetland hydrology has been lost and it is critical to observe carefully and note all other site characteristics, including vegetation and hydrology before making a wetland determination.

The wetland determination data forms for the 2013 delineation are more thoroughly filled out than the 2012 forms; however, several errors were noted, especially on soil determinations, such as Thick Dark Surface. The hydric soil type was identified on many sample points, but it does not look like the soils were over a depleted or gleyed matrix which needs to occur for it to meet this indicator.

We have provided a comment if the errors found would change the wetland/upland designation, based on other information provided for each sampled point. For sites where the conclusion would remain unchanged, incomplete or incorrect data forms still are a concern and undermine the confidence in the mapping.

Specific Sample Point Concerns:

Appendix b1 - 2012 Data Forms

Sample Point 1: Alaska Gleyed soil clay layer. Positive wetland indicator for soil, but vegetation and hydrology were determined not to be present. Local relief on data forms states sample point in concave position, which should have been marked as secondary hydrological indicator under D2 Geomorphic Position. Therefore, wetland hydrology should have been positive. Index of Appendix b defined this area as upland. Conclusion would be unchanged: upland site.

Sample Point 2: Summary of findings positive for all criteria, yet wetland hydrology marked no under that section on page 2, even though two secondary hydrology indicators were marked. Shallow Aquitard not marked on hydrology indicator even though permafrost found at 18-inches. Index of Appendix b defined this area as wetland. Conclusion would be unchanged: wetland site.

Sample Point 3-2: Local Relief field not filled out, so unable to determine if another secondary hydrologic indicator should have been checked. The sample point conclusion was not included in Index of Appendix b. Conclusion would be unchanged: upland site.

Sample Point 4: Delineation form has positive wetland vegetation. Concluded that sampled area not a wetland, but states N/A under soils and hydrology and those sections were not filled out on form and no explanation in notes. One Secondary Hydrology Indicators checked for FAC-Neutral test, but local relief not filled out. Latitude not entered on form. The sample point conclusion was not included in Index of Appendix b. Was this a photo point only? How were points like this one used?

Sampling Point 6: No Lat/Long provided. Local relief field not filled out, so unable to determine if a second secondary hydrologic indicator should have been checked. The sample point conclusion was not included in Index of Appendix b.

Sample Point 7: Hydrophytic vegetation positive, soil information is incomplete, Permafrost layer at 12 inches, nothing filled out under hydrology, including nothing under shallow aquitard even though permafrost layer documented at 12-inches. Local relief not filled out. Index of Appendix b defined this area as upland. Additional information could result in the sampled area designation changed to wetland.

Sample Point 14: Permafrost barrier layer at 9" (hydric soil indicated as not present and wetland hydrology indicated as not present). Shallow Aquitard not marked on hydrology indicator even though permafrost layer noted at 9 inches. Local relief field not filled out. Form concludes the area was not a wetland, but Index of Appendix b defined this area as wetland despite apparently lacking two of three wetland indicators.

Sample Point 17: Positive indicator for hydrophytic vegetation. 40% cover of obligate plant species in the herb stratum. Soils and hydrology fields are not filled out on data form, only N/A in Summary of Findings section. Index of Appendix b defined this area as upland, despite lacking information on two indicators.

Sample Point 19: Marked positive for wetland vegetation but not for soils or hydrology. Clay layer at 5-11 inches with permafrost layer at 11 inches. 10yr 4/1 soil color matrix which could possibly qualify as hydric but matrix percentage and redox features not filled out. Wetland hydrology should have been positive, since shallow Aquitard not marked on secondary hydrology second indicator even though permafrost layer noted at 11 inches. Local relief field not filled out, so could have had 3 secondary wetland indicators. Index of Appendix b defined this area as upland. Reevaluation of information could result in the sampled area designation changed to wetland.

Sample Point 27: Local relief field not filled out. Positive vegetation but soil and hydrology indicators marked as negative. 10yr 4/1 soil color matrix which could possibly qualify as hydric but matrix percentage and redox features not filled out. Permafrost restrictive layer at 12 inches. Secondary hydrology indicator marked includes oxidized rhizospheres along living roots, shallow aquitard not marked as additional secondary hydrology indicator which would make that indicator wetland hydrology positive. Index of Appendix b defined this area as upland. Additional information could result in the sampled area designation changed to wetland.

Sample Point 32: Hydric vegetation positive. Permafrost layer at 22 inches, but shallow aquitard not marked as secondary hydrology indicator. Index of Appendix b defined this area as upland. Conclusion would be unchanged: upland site.

Sample Point 33: Hydric vegetation positive, permafrost layer at 16-inches but shallow aquitard not marked as secondary hydrology indicator. Index of Appendix b defined this area as upland. Conclusion would be unchanged: upland site.

Sample Point 103: Vegetation and hydrology positive, soil indicator negative. Matrix percentage not filled out. Conclusion in Appendix b (page 3) defined area as wetland, although it was stated on data form the sampled site was not in wetland.

Sample Point 108: Conflicting soil information. Histic Epipedon marked as positive soil indicator, yet conclusion was soils not hydric. Index of Appendix b defined this area as upland. Conclusion would be unchanged: upland site.

Sample Point 114: Datasheet does not indicate whether sampling point is a wetland or not. Index of Appendix b defined this area as wetland. Positive indicator for vegetation and soils, and wetland hydrology marked as not present. Local relief field not filled out on form. Soil identified as Thick Dark Surface, yet soil profile data does not meet that description. No soil remarks to help understand soil indicator chosen. Hydrology marked as not present, but secondary indicators may be missing. FAC-Neutral test was marked as positive, and could have had geomorphic position as second secondary indicator if local relief had been filled out.

Sampling Point 115: Under Soil, the remarks says “no sample pit dug, gravel surface.” Unclear if the gravel found was native, i.e. stream/glacial substrate, or fill material. Did not complete form for soils or hydrology. Index of Appendix b defined this area as upland, although wetland vegetation was confirmed. Dominance Test calculated incorrectly resulting in 133% of dominant species found to be FAC or wetter.

Sample Point 116: Soil profile data indicates Histic Epipedon hydric soil, since top 12" soil layer described as humic organic matter and next soil layer is 10YR 4/1 Sandy Loam; yet hydric soils marked not present on data form and no hydric soil indicators marked. For hydrology indicators marked on form, but should have marked FAC-Neutral Test (D-5) as secondary indicator. Local Relief field not filled out on data form, so unable to discern if geomorphic position would have been second secondary hydrology indicator that would result in wetland hydrology being found present. Index of Appendix b defined this area as upland, but additional information could result in the sampled area designation changed to wetland.

Sample Point 121: Should have been identified histic epipedon hydric soil indicator. Permafrost layer at 18 inches noted but shallow aquitard for hydrology as a secondary indicator not marked on form and would have met FAC-Neutral test as positive. Field data would have supported all 3 wetland parameters and a conclusion as a wetland, yet form marked as no hydric soils and no wetland hydrology present.

Sample Point 124: Soil indicator marked positive, but didn’t identify hydric soil indicator on form.

Sample Point 126: All positive indicators but didn’t mark soil and hydrology indicators on form. Index of Appendix b defined this area as wetland. Wetland conclusion is not expected to change, just an incomplete form.

Sample Point 127: Unclear if the first 4 inches of organics includes finer materials than just “Coarse Woody Debris.” Coarse woody debris should have been removed from top if greater than 2 cm in cross section, etc. If finer organics are in those first 4 inches, then the soil would indicate histic epipedon hydric soil due to having 10 inches of organics underlain by mineral soil, yet form marked no hydric soil indicator. Index of Appendix b defined this area as upland. Upland conclusion is not expected to change, just incorrect soils information.

Sample Point 136: Data form with missing information on whether or not area sampled is in wetland; however, Appendix b defined this area as wetland.

Sample Point 137: Hydric vegetation positive, hydric soils marked as negative. Hydrology marked no but should have marked two secondary indicators including Shallow Aquitard (Permafrost at 18 inches) and FAC-Neutral Test. Index of Appendix b defined this area as upland. Conclusion would be unchanged: upland site.

Sample Point 141: Are 'normal circumstances' present question on form? Both yes and no are checked. Index of Appendix b defined this area as upland.

Sample Point 142: Are 'normal circumstances' present question on form? Both yes and no are checked. Also, should have stated on form no soil pit required because surface water and hydrophytic vegetation present. Appendix b defined this area as wetland.

Sample Point 143: Information completely missing under soils and hydrology and no explanation provided on form. “Is the sampled area in a wetland?” also is blank. Index of Appendix b defined this area as upland. Conclusion is not supported by field information.

Sample Point 160: Soil data and remarks not filled out. Water Table present is marked no, but that determination can only be made by digging a soil pit, which is not indicated to have occurred. Summary of findings for presence of hydric soil not checked. Index of Appendix b defined this area as upland.

Sample Point 164: Soil data not filled out. Water Table present is marked no, but that determination can only be made by digging a soil pit, which is not indicated to have occurred. Index of Appendix b defined this area as upland.

Sample Point 165: Hydric soils and hydrology identified as not present. Positive indicator for wetland vegetation with FAC and FACW species, soil is organic peat from 4-16 inches, with impermeable permafrost layer at 16 inches, yet soil marked as not hydric. Should have been identified as Histosol or Histel (A1) hydric soil indicator. Permafrost noted at 16-inches but not marked as shallow aquitard under secondary hydrology indicator. FAC-Neutral Test is positive and that would have been an additional secondary hydrological indicator to conclude wetland hydrology was present. Conclusion on the form indicates the sample point is not wetland, but should have been found to be wetland, as all three parameters would have been positive; Index of Appendix b defined this area as upland.

Sample Point 183: Alaska Gleyed pores (A15) identified as hydric; however matrix color does not fit this soil description and information is missing on redox color pores or pore linings. Appendix b defined this area as wetland. Reevaluation of information could result in the sampled area designation changed to upland.

Sample Point 184: Hydric soils marked not present, yet soils matrix same colors as in Sample 183. Sampled area determined to be in wetland, even though hydric soil marked not present. Appendix b defined this area as wetland. Conclusion would be unchanged: wetland site.

Sample Point 189: Hydric soil present marked as no, yet indicates site is wetland. Appendix b defined this area as wetland. Conclusion not expected to change and would still be a wetland site.

Sample Point 197: Are normal circumstances present marked as no but no explanation on data form. Appendix b defined this area as wetland.

Sample Point 198: Hydrophytic vegetation positive, soils identified as 0-8" organics, and 8-22" loam with organics but conclusion is that hydric soils not present. Should be identified as histic epidedon positive hydric soil indicator. Local relief identified as concave which would given 2 secondary indicators for hydrology as geomorphic position, yet this indicator was not marked and wetland hydrology present was marked as no. Site should have been determined to be wetland; however, data form and Index of Appendix b defined this area as upland.

Sample Point 202: Vegetation and hydrology indicators marked as present, but not soil. The soil profile is documented as 6 inches organic with 6-22 inches 7.5 yr 3/1 and 15% redox features. This soil seems really close to be histic epipedon which is described in Regional Supplement as, "most histic epipedons are surface horizons 8 inches or more of thick saturated organic" and are underlain by mineral soil with chroma of 2 or less. Delineation form said not in wetland; however, Index of Appendix b defined this area as wetland.

Sample Point 203: The soils were determined to be hydric and were identified as Alaska Gleyed Pores (A15). However, data collected doesn't meet definition of Alaska Gleyed Pores in the Regional Supplement since matrix identified as 10yr 3/1 for 90% of Matrix and 10yr 3/6 for 10% redox features on data form. Regional Supplement states for Alaska Gleyed Pores definition: A mineral layer that has 10 percent or more hue of N, 10Y, 5GY, 10GY, 5G, 10G, 5BG, 10BG, 5B, 10B, or 5PB with value of 4 or more along root channels or other pores and that starts within 12 in. (30 cm) of the soil surface. The matrix has a dominant hue of 5Y or redder. However, data form and Index of Appendix b defined this area as wetland. Reevaluation of data could change designation to upland.

Sample Point 205: Inccorrect hydric soil identified. 22" of organic material and peat found, but identified on form as histic epipedon Should be histosol or histel instead, which are described in the supplement as soils usually having 16 in. (40 cm) or more of saturated organic material measured from the soil surface. Conclusion would not change and site would still be a wetland.

Sample Point 214: Data form makes conclusion that soil and hydrology indicators not present; however, hydrology remarks says "Small depression of standing water and saturation observed just under the sphagnum. Mosaic." Saturation not marked as an Hydrology Indicator. Index of Appendix b defined this area as wetland. Confusing: Conclusion may be unchanged.

Sample Point 223: concludes site is not wetland. Vegetation as positive indicator but Hydric Soils and Hydrology marked not present on form. Hydrology remarks describe saturation and surface cracks. Surface cracks not marked as an indicator. Index of Appendix b defined this area as wetland. Reevaluation of information could result in the sampled area designation changed to upland.

Appendix b3 - 2013 Data Forms (*Note: The information below is only based on the review of data sheets up to Sample Point T16-112 and did not include review of data sheets after this sample point*).

Sample Point T4-23: Vegetation and soil indicators positive. Hydrology indicator marked no, however, only shallow aquitard marked for secondary hydrology indicator. Permafrost at depth of 11 inches. Sample point in concave location, so geomorphic position should have been marked and hydrology would have been positive. Should have been identified as wetland. Index of Appendix b indicates this is upland, however map shows this sample point as wetland.

Sample Point T5-28: All three parameters positive yet question on form: is site sampled in wetland marked no. Index of Appendix b defined this area as wetland.

Sample Point T6-36: Hydric soil indicator identified as Thick Dark Surface (A12), but soil profile data doesn't support that soil type description and instead seems to support Alaska Redox (A14). Index of Appendix b defined this area as wetland. Conclusion would be unchanged.

Sample Point T6-40: Hydric soil indicator identified as Thick Dark Surface (A12), but data doesn't support that soil type description. Unsure what soil type should be. Index of Appendix b defined this area as wetland.

Sample Point T8-47: Hydric soil indicator identified as Thick Dark Surface (A12), but data doesn't support that soil type description. Appears to be closer to Histic Epipedon. Index of Appendix b defined this area as wetland. Conclusion not expected to change and would still be wetland.

Sample Point T-11-65: Site marked as not a wetland with no hydric soil or wetland hydrology. Soil appears to meet definition of Thick Dark Surface hydric soil type, but not marked as such on form. Saturation present at 15 inches, doesn't meet the definition of Saturation A-3 (but close). Conclusion could potentially be changed to wetland.

Sample Point T12-73: Site determined to be wetland, however, does not appear to meet hydric soil definition of Thick Dark Surface as marked on form as no indication of gleyed or depleted matrix in soil data. Strong hydrology indicators. Index of Appendix b defined this area as wetland. Conclusion could potentially change to upland.

Sample Point T12-77: Identified as Alaska Gleyed hydric soil indicator but should have also checked Alaska Gleyed without Hue 5Y or redder underlying layer. Index of Appendix b defined this area as wetland. Conclusion not expected to change and would still be wetland.

Sample Point T12-82: Wetland vegetation marked as not hydrophytic, yet both tests (Dominant and Prevalence Index) were positive and indicate hydrophytic vegetation should have been marked as present. Soils and hydrology indicators were not found to be present. Index of Appendix b defined this area as upland. Conclusion would not change and would still be upland.

Sample Point T12-86: No data collected for soils likely due to surface water. Summary remarks discuss photo point only. Index of Appendix b defined this area as wetland.

Sample Point T13-81: Positive for hydrophytic vegetation. Alaska Redox with 2.5Y Hue marked as indicator for problematic soil, yet hydric soil determination was negative. Soil remarks state "soils not hydric." Index of Appendix b defined this area as upland. Conclusion as upland not expected to change due to lack of hydrology indicators.

Sample Point T13-92: Permafrost at depth of 13 inches, but Shallow Aquitard not marked as a secondary hydrology indicator. Index of Appendix b defined this area as upland. Conclusion as upland not expected to change.

Sample Point T14-100: Permafrost at depth of 10 inches, but Shallow Aquitard not marked under hydrology. Index of Appendix b defined this area as upland. Conclusion as upland not expected to change.

Sample Point T16-112: Vegetation was the only positivie indicator marked. Soil close to Histic Epipedon but organic layer only 5 inches; however underlain by mineral soil with chroma of 2 or less. Secondary indicator oxidized rhizospheres along living roots was marked. Shallow aquitard should have been marked as another secondary hydrology indicator due to Permafrost at depth of 14 inches. It would have met positive for wetland hydrology indicator. Also FAC-Neutral teste should have been marked as another secondary hydrology indicator on form. Index of Appendix b defined this area as upland. Conclusion could potentially be changed to wetland.

Note: Subsequent data forms were not reviewed after Sample Point T16-112.